



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,084	02/25/2004	Ichiro Tanaka	Q79955	8542

23373 7590 07/12/2005  
SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

SAMPLE, DAVID R

ART UNIT	PAPER NUMBER
----------	--------------

1755

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/785,084	TANAKA ET AL.	
	Examiner	Art Unit	
	David Sample	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-13 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9 and 10 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Claim Objections***

Claim 9 is objected to because of the following informalities: Claim 9 depends from claim 8, which has been deleted.

Appropriate correction is required.

#### ***Claim Amendments***

The amendment “about 2% by weight or more and about 5% by weight or less” stabilizer finds written support in the specification as originally filed at page 5, lines 3-5, and further in view of the fact that one of ordinary skill in the art would recognize that the specification (which discloses the range of “about 2% by weight or more and about 10% by weight or less) inherently supports narrower ranges. See MPEP 2163.06 III.

#### ***Claim Rejections - 35 USC § 102***

Claims 1-7, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ghosh et al. (US Patent No. 5,336,282).

Ghosh et al. discloses a stabilized zirconia ceramic which has the tetragonal crystal structure. See the abstract and col. 6, Example 1. The examiner calculates that the (111) peak of

Art Unit: 1755

the Ghosh et al. ceramic has a full width at half maximum of  $0.5^\circ$ . See Example 1 and Figure 4.

The examiner arrive at this number as follows:

The (111) peak of the tetragonal zirconia is the peak near  $30^\circ$  two theta. See figures 1 and 2 or the specification. In Figure 4 of Ghosh et al. this peak has an intensity of about 3950 including background radiation (i.e., the baseline). The examiner calculates that the background radiation accounts for about 350 of the total intensity and subtracted this out to arrive at total peak intensity of 3600. Half of 3600 is 1800. The background is added back in to arrive at an intensity at half maximum including the background radiation of 2150. Where a horizontal line at an intensity of 2150 intersects the (111) peak, two vertical parallel lines were dropped to the x-axis of the plot. The distance between the lines was estimated to be about  $0.5^\circ$ . This FWHM anticipates with ranges recited in claims 1-3.

The material of Example 1 contains 8.8 wt% stabilizer ( $Y_2O_3$ ), which anticipates the present claims in view of latitude in interpreting the word 'about' in claims.

As to claim 4, the reference discloses that the ceramic is entirely tetragonal zirconia. See col. 6, lines 51-64.

As to claim 5, the reference fails to disclose the grain size of the sintered ceramic. However, the grain size of a ceramic is inversely proportional to the FWHM of the ceramic. A wider FWHM results in smaller grains. Since the FWHM of the ceramic of the is the same as FWHM recited in claims 1-3, the examiner assumes that the claimed grain size is inherent to the product of Ghosh et al. See MPEP 2112.

As to claim 9, Example 1 of the reference employs  $Y_2O_3$  as a stabilizer. See col. 6, example 1.

Art Unit: 1755

The reference fails to disclose all of the details of the x-ray diffraction measurement as recited in claim 1. However, the product of Ghosh et al. exhibits the claimed FWHM. This is strong evidence that the ceramic of Ghosh et al. would exhibit the same FWHM when subjected to the x-ray diffraction parameters of claim 1. In other words, since Ghosh et al. exhibits the claimed FMHM, the examiner assumes that the ceramic of Ghosh et al would inherently exhibit the same FWHM when subjected to the x-ray diffraction parameters of claim 1. See MPEP 2112.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghosh et al. (US Patent No. 5,336,282).

This rejection is in the alternative to the § 102 rejection above should '8.8' be deemed not to be 'about' 5 wt%.

Thus, for purposes of this rejection, Ghosh et al. discloses Examples, which anticipate all of the claim recitations with the exception of the stabilizer content. As to the content of the stabilizer, the reference discloses a lower limit for the stabilizer as 3 mol%. See the abstract. A ceramic containing 3 mol% Y<sub>2</sub>O<sub>3</sub> and 97 mol% ZrO<sub>2</sub> converts to 5 wt% Y<sub>2</sub>O<sub>3</sub> and 95 wt% ZrO<sub>2</sub>.

Art Unit: 1755

Moreover, the reference discloses that the ceramic may contain other stabilizers such as MgO and CaO. See the abstract. A ceramic containing 5 mol% MgO and 95 mol% ZrO<sub>2</sub> converts to a material 2 wt% MgO and 98 wt% ZrO<sub>2</sub>, and a ceramic containing 5 mol% CaO and 95 mol% ZrO<sub>2</sub> converts to a ceramic containing 2 wt% CaO and 98 wt% ZrO<sub>2</sub>.

Thus, it appears that the amount of stabilizer disclosed by the reference overlaps the range recited in claim 1. Overlapping ranges have been held to establish *prima facie* obvious. See MPEP 2144.05.

### ***Response to Arguments***

Applicant's arguments filed June 16, 2005 have been fully considered but they are not persuasive.

Applicants argue that the reference fails to disclose the claimed Y<sub>2</sub>O<sub>3</sub> content. As described in the above rejection, "8.8 wt%" Y<sub>2</sub>O<sub>3</sub> is deemed to be "about 5 wt%" in view of the latitude in interpreting the word "about" in claims.

### ***Allowable Subject Matter***

Claims 11-13 are allowed.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

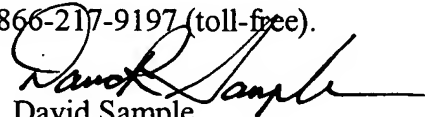
Art Unit: 1755

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Sample whose telephone number is (571)272-1376. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (572)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
David Sample  
Primary Examiner  
Art Unit 1755